Conceptual change using the perspective of threshold concepts: evidence from economics

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The idea of a threshold concept: an overview

• An idea born to make sense of problems faced by undergraduates
• An idea that has proved fertile in encouraging conversations about learning in particular disciplines.
• An idea with some distinctive implications for teaching and learning
'I think the hardest topic I found is the ISLM…. just because there’s so many different diagrams to go through that it just seems really difficult to go through them and find a logical process for it.'

'Because at A level we kind of took the aggregate demand and aggregate supply like a given and like a group built from that. Whereas so far this term we have been working on the derivation of like aggregate demand and aggregate supply from IS/LM and it has been quite interesting to see how at A level whilst we thought like we knew everything they were glossing over a lot of the assumptions and theory.'

'...I got it and then I lost it and then I sort of got it again but now I’m completely lost, you know…'

So What is a Threshold Concept?

Five Suggested Characteristics:
- Transformative
- Integrative
- Irreversible
- Boundary Setting
- Troublesome
So What is a Threshold Concept?

Five Suggested Characteristics:

- **Transformative**
- **Integrative**
  - Irreversible
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Probably the 2 most important characteristics

Transformative?

... my physics teacher told me that I wasn’t a physicist (laughs). So I went like, okay, fair enough and so I had to go with economics really.

Just my overview, sort of general overview of life really. I think economics make major changes, so if you sort of just look out the window and sort of, instead of sort of general the sort of seeing mess that’s the problem, how am I going to do the mess problem?

Well for something like maybe Geography or the environment like the green people would say that there should be no pollution at all. Where as environmental economics would say that there is a sustainable level of pollution and we should pollute up to the point where the costs and benefits equal each other. So I think that economics presents a much more practical way of thinking than some other disciplines.
Integrative?

To some extent every instance of learning – every conceptual change involves some integration of understanding – so what makes conceptual change involving a threshold concept something different?

Different Kinds of Integration – example 1

Q. Why has the price of beer in this town gone down?
A. Because more of it is being sold and that means the pubs can do more bulk buying of beer which brings the cost of beer down for them

Q. Why has the price of sandwiches in the town centre gone down?
A. Because people have got less money and they put the price down to sell
But the account of the supply/cost side is just the same
Different Kinds of Integration – Example 2

Q. Why has the price of beer in this town gone down?
A. Because more of it is being sold and that means the pubs can do more bulk buying of beer which brings the cost of beer down for them.

Q. Why has the price of sandwiches in the town centre gone down?
A. Because more of it is being sold and that means the pubs can do more bulk buying of beer which brings the cost of beer down for them.

Still explaining price in terms of cost but the understanding of cost has changed.

Different Kinds of Integration – Example 3

Q. Why has the price of beer in this town gone down?
A. Because more of it is being sold and that means the pubs can do more bulk buying of beer which brings the cost of beer down for them.

Q. Why has the price of sandwiches in the town centre gone down?
A. Because the sandwich bars have been competing with each other for customers and by finding ways to reduce their costs they have been able to reduce the end price of their sandwiches.
Different kinds of integration in Conceptual Change

A change in number of factors brought into play: (component relations)

A change in the way an underlying factor is understood: (component reconfiguration)

A change in the theoretical framing of the problem – from single business to a market phenomenon – (theoretical re-framing)

Different kinds of integration in Conceptual Change

\[ C_1 = f(x_1) \]
\[ C_2 = f(x_1, y_1) \]

This is the kind of integration associated with Threshold Concepts

\[ C_1 = f(x_2) \]
\[ C_2 = f(x_2) \]

\[ C_1 = f(x_1) \]
\[ C_2 = f(x_2, \text{etc.}) \]
Basic Concepts

Procedures/Procedural Concepts

Component relations/reconfiguring

Theoretical Reframing

Desired Change in Students' Conceptual Understanding over time

Types of Conceptual Change and the Students’ Progress

“Corridor of Uncertainty”/“Liminal Space”/Potential Transformation

References


